WASHINGTON REPORT
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Lee Van Wychen

New Way to Detect Palmer Amaranth in Contaminated Seedlots

News Writer: Lauren D. Quinn
Source: University of Illinois College of Agricultural, Consumer and Environmental Sciences

Last summer, farmers in the Midwest got an unwelcome surprise after planting native seed on Conservation Reserve Program (CRP) acres. Palmer amaranth, the aggressive and hard-to-kill weed, had established in droves. As a possible solution, some states declared Palmer a noxious weed, which prohibits its sale and transport.

"I've had seed growers call me," says Pat Tranel, molecular weed scientist in the crop sciences department at the University of Illinois. "Their businesses are up in the air because of this. Unless they have a way to certify their product is Palmer-free, they can't sell it."

PHOTO: The new genetic test can detect a single Palmer amaranth seed among 99+ seeds of close relatives.

Credit: Lauren D. Quinn

The typical testing method involves growing a sample of seeds until the plants are large enough to be identified, but this is a slow and potentially unreliable process. "It all takes a long time, and sometimes the seeds don't germinate during the test," Tranel says. "Alternatively, there's a company that will test individual seeds using DNA sequencing, but they're charging $100 per seed. It's not cost-effective."

Tranel and graduate student Brent Murphy developed a way around these issues. Their low-cost method can identify Palmer amaranth DNA from within a mixed sample without having to grow the plants. The assay, which uses a method known as quantitative PCR, can detect genetic variations unique to Palmer even when flooded with samples from closely related species, including waterhemp.

"Palmer, redroot pigweed, waterhemp – they all have tiny black seeds that basically look the same. We needed a way to efficiently extract DNA from pooled seed samples and, if it's present, identify Palmer," Tranel says. Once Tranel and Murphy developed this assay, they worked with University of Illinois Extension's Plant Clinic to optimize the test for mixed seed samples. Diagnostic outreach Extension specialist Diane Plewa and Plant Clinic technician Elizabeth Phillippi began trying different methods to extract DNA from seed. The assay is very sensitive, but if DNA is not correctly extracted from a lone Palmer amaranth seed in a mixed sample, it won't be detected.

"The trick," Plewa says, "is to make sure every seed is ground up during the extraction process." The researchers were able to consistently detect a single Palmer amaranth seed when mixed with 99 waterhemp seeds, and they believe the assay could achieve even greater sensitivity with additional refinement.

The Plant Clinic has optimized a protocol for commercial testing of seed lots. "We have a test that we feel very confident in," Plewa says. "We are offering the service now, for $50 per sample." For more information, call 217-649-3941 or visit the Plant Clinic website.

The article, "A quantitative assay for *Amaranthus palmeri* identification," is published in *Pest Management Science*. Authors Brent Murphy and Pat Tranel are housed in the Department of Crop Sciences at U of I, and Diane Plewa, Elizabeth Phillippi, and Suzanne Bissonnette are from University of Illinois Extension's Plant Clinic. The work was supported by a USDA National Institute of Food and Agriculture Hatch grant.

Perdue Confirmed as Secretary of Agriculture

Sonny Perdue was confirmed as the 31st Secretary of Agriculture by the Senate on April 24, 2017 by a vote of 87-11. The Senate Agriculture Committee approved Sonny Perdue's nomination by a voice vote on March 30, 2017. Perdue, 70, was born and raised on a diversified row crop and dairy operation in central Georgia and earned a doctorate in veterinary medicine from the University of Georgia in 1971. Following a brief tenure as a practicing veterinarian, Perdue started two businesses from the ground up, concentrating in agribusiness and transportation. Perdue also served two terms as Georgia's governor from 2003-2011. Perdue is only the third Secretary of Agriculture out of 31 to actually have lived and worked in agriculture during their adult career. More on Secretary Perdue at: https://www.usda.gov/our-agency/about-usda/our-secretary.

Pruitt Confirmed as EPA Administrator

The Senate confirmed Scott Pruitt as the 14th Administrator of the U.S. EPA by a vote of 52-46 on Feb. 17, 2017. The 49 year old Pruitt was born and raised in Kentucky where he graduated from Georgetown College in 1990. After that, he moved to Oklahoma where he earned his law degree at the University of Tulsa specializing in constitutional law. Most recently, Pruitt served as the Attorney General for Oklahoma. More on Administrator Pruitt at: https://www.epa.gov/aboutepa/epas-administrator

Zinke Confirmed as Secretary of Interior

Ryan Zinke was confirmed as the 52nd Secretary of the Interior by the Senate on March 1, 2017 by a vote of 68-31. The native Montanan served 23 years as a U.S. Navy Seal officer, retiring in 2008. He has a B.S. in Geology from the University of Oregon, a Masters in Business Finance from National University, and a Masters in Global Leadership from the University of San Diego.

During his confirmation hearings, Zinke said he would take a "multi-use approach" to federal land management on the more than 500 million acres of public land managed by the Department of Interior. He also vowed to clear the estimated $12 billion backlog in maintenance and repair at national parks. More on Secretary Zinke at: https://www.doi.gov/pressreleases/ryan-zinke-sworn-52nd-secretary-interior

Congress Approves FY 2017 Funding; President Proposes FY 2018 Budget

On May 1, Congress reached an agreement on funding the government at updated levels through September 30, 2017. The government had been operating on a series of continuing resolutions for the first seven months of FY 2017. For USDA's National Institute of Food and Agriculture (NIFA), most accounts were funded at the same level as FY 2016 with the exception being the Agriculture and Food Research Initiative (AFRI), which received a $25 million increase from $350 million to $375 million. Funding for USDA-APHIS was increased $52 million over FY 2016 to $946 million and funding for USDA-ARS was increased $27 million over to $1.17 billion.

On May 23, the President released his FY 2018 "skinny" budget, which proposed an overall cut of 21 percent to USDA. Most programs in USDA's Research, Education, and Economics mission area did not fare as badly with NIFA facing an 8 percent cut, the Economic Research Service (ERS) an 11 percent cut, and ARS a 15 percent cut. The National Agricultural Statistics Service (NASS) is proposed for a $14 million increase to conduct the 2017 Census of Agriculture. The Administration did propose to maintain level funding for a couple of the land grant capacity programs (Hatch Act, Smith-Lever 3(b) & (c)), as well as IR-4. Details of the President's FY 2018 budget proposal can be found here.

It is important to remember that this is the Administration's budget "proposal" and over the next several months members of Congress will work to develop the final FY 2018 appropriations bills. It will be important that Congress hears from the stakeholders of these various agricultural research, education, extension, and natural resources programs.

Selected USDA Discretionary Appropriations Accounts

Program	2014	2015	2016	**2017 Omnibus**	2018 President
	(Millions of Dollars)				
NIFA	1277	1289	1326	**1362**	1252.7
Hatch Act	244	244	244	**244**	243.2
Smith-Lever 3(b) & (c)	300	300	300	**300**	299.4
AFRI competitive grants	316	325	350	**375**	349.3
IR-4	11.9	11.9	11.9	**11.9**	11.9
Crop Protection & Pest Mang't	17.2	17.2	17.2	**20.0**	14.0
ARS	1122	1132	1143	**1170**	993
ERS	78	85	86	**86**	76
NASS	161	172	168	**171**	185
APHIS	821	871	894	**946**	810
NRCS	812	846	850	**864**	766

$44 Million Available for AFRI Plant Health, Production and Plant Programs

The USDA-NIFA Agriculture and Food Research Initiative (AFRI) Foundational Grants program is currently requesting applications for up to $44 million available for its Plant Health, Production and Plant Programs. https://nifa.usda.gov/afri-request-applications

The closing dates vary by program. Here are the most relevant programs for weed science with their closing dates:

- Foundational Knowledge of Agricultural Production Systems – closes: **June 29, 2017**
- Pests and Beneficial Species in Agricultural Production Systems – closes: **July 12, 2017**
- Physiology of Agricultural Plants – closes: **June 28, 2017**
- Plant Breeding for Agricultural Production – closes: **July 19, 2017**
- Pollinator Health: Research and Application – closes: **June 28, 2017**

NOTE: If you downloaded the application package for the AFRI Foundational Grants program from www.grants.gov **before May 22, 2017**, you must download and use the new application package.

USDA-NIFA Releases Study on the Value of Capacity Programs

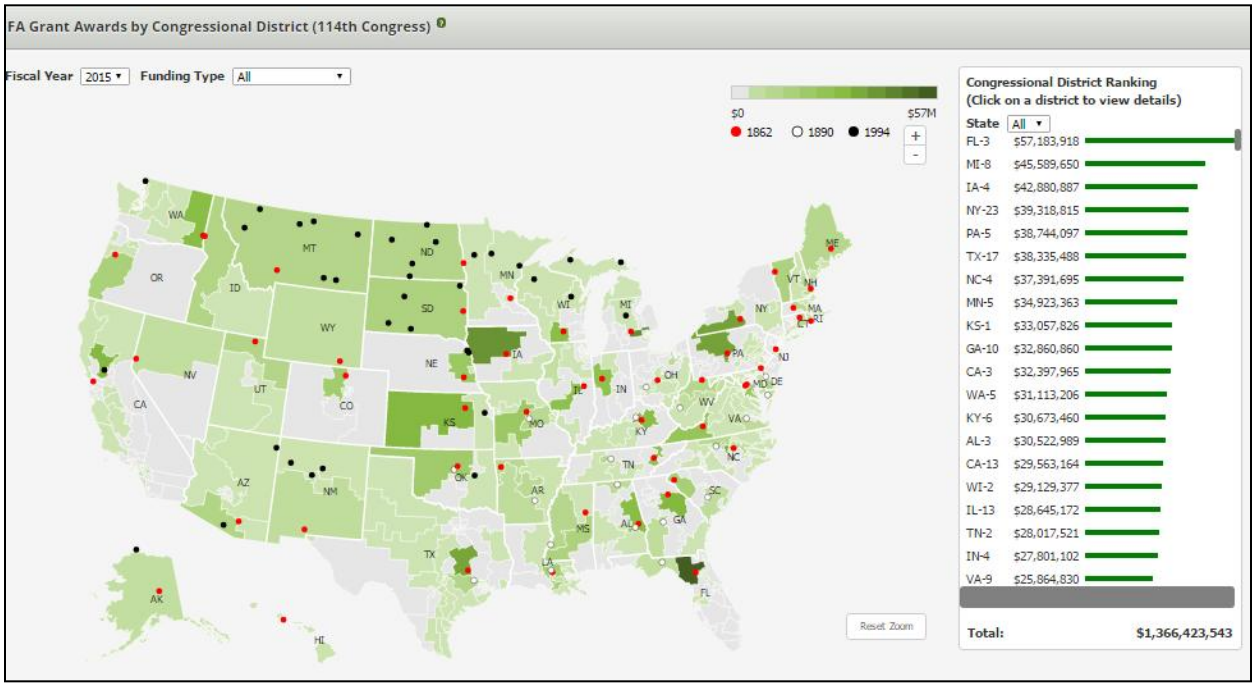
The USDA National Institute of Food and Agriculture (NIFA) released a new report that measured the effectiveness of NIFA's investments in capacity programs. The report entitled, "National Evaluation of Capacity Programs," found that capacity funding remains a relevant program that offers multiple benefits. Investments respond to the specific needs of local, regional, and state agricultural producers. Capacity funds offer an essential funding stream for

research and extension programs of relevance to producers that are unlikely to receive national-scale attention. **Each dollar of capacity funding leverages $1.85 in additional investments from state, local, and private sector sources**.

NIFA commissioned the study to determine whether funding based on 100-year-old legislation is still a suitable model to support 21st century university needs. The results of the study will be helpful in defending the federal investment in capacity programs such as Hatch and Smith Lever as budget constraints lead to discussions about potential cuts to the USDA budget.

Map of USDA-NIFA Grant Awards by Congressional District Available

A new, interactive map from USDA's National Institute of Food and Agriculture (NIFA) shows both competitive and capacity grant awards to the 1862, 1890, and 1994 land grant institutions. The Congressional district map is based on the 114th Congress (2015-16) and shows awards for each year from FY 2011 through FY 2016. Top of the list in FY 2016 was NC-4, home to North Carolina State University, which received $23.7 million in capacity grants and $22.7 million in competitive grants. See: https://portal.nifa.usda.gov/web/maps/nifa-funding-by-congressional-district/



The above map is part of USDA's Research, Education, and Economics Information System (REEIS), https://reeis.usda.gov/. The website is an excellent source of information on the research, education, and extension programs funded by USDA and includes many other types of state and national reports, trends, rankings and maps.

Davis and Panetta Launch House Ag Research Caucus

House Agriculture Committee members Jimmy Panetta (D-CA) and Rodney Davis (R-IL) have launched the Congressional Agriculture Research Caucus to promote research needs in advance of the 2018 farm bill. Davis and Panetta are both members of the House Ag Subcommittee on Biotechnology, Horticulture and Research, with Davis serving as Chair.

Rep. Panetta: "*As a representative of the Salad Bowl of the World, I believe it is of the utmost importance to equip our growers, shippers, and farmworkers with the most effective tools possible. Strategic investments in research for plant breeding, crop protections, and mechanization will support the future success of the agriculture industry while also helping to address major concerns relating to resource conservation and labor shortages. I look forward to working with Congressman Davis and our colleagues on both sides of the aisle to further support our nation's agriculture industry*."

Rep. Davis: "*By investing in agricultural research today, we will ensure U.S. agriculture remains competitive globally and continues to lead the way in food and agriculture innovation. My district is home to several major universities that are at the forefront of agricultural research critical to our state and national economies. Additionally, the potential for public-private partnership between industry and academia allows us to expand our horizon and reach new goals. I look forward to joining my colleagues on both sides of the aisle to make agriculture research a priority."*

House Ag Subcommittee Focuses on Ag Research in the Next Farm Bill

On March 16, the House Agriculture Subcommittee on Biotechnology, Horticulture, and Research held a hearing titled "The Next Farm Bill: Agricultural Research." The subcommittee heard testimony from three witnesses who spoke about the need to support competitive and capacity programs. They also provided stakeholder perspectives on how they benefit from agriculture research to support their businesses. For a list of witnesses, their written testimony, and a recorded video of the hearing, please go to: http://agriculture.house.gov/calendar/eventsingle.aspx?EventID=3728.

Fennimore Presents 'Robotic Weed Wars' Seminar On Capitol Hill

Photo: *Dr. Steve Fennimore (far right), addresses attendees at a May 22 seminar at the House Agriculture Committee.*

On May 22, 2017, Dr. Steve Fennimore from UC-Davis presented a seminar on Capitol Hill titled "Robotic Weed Wars: A New Game, New Players and New Rules". The seminar was part of the National Coalition for Food and Agricultural Research (NC-FAR) Lunch-n-Learn seminar series. WSSA is a member of NC-FAR and a sponsor of the seminar series. NC-FAR is a consensus-based and customer-led coalition that serves as a forum and a unified voice in support of sustaining and increasing public investment at the national level in food and agricultural research, extension and education.

Seminar Abstract: *U.S. vegetable growers are mainly dependent on hand weeding to achieve acceptable weed control since there are relatively few herbicides registered for use in these small acreage crops due to the nearly $300 million cost of researching, developing, and testing a new herbicide that would meet today's regulatory requirements. Labor shortages have led to higher hand-weeding costs that run $150 to $300 per acre, thus vegetable growers have begun to adopt automated robotic weeders. Machine vision technology, together with data processors, have been developed to enable commercial machines to recognize crop row patterns and control automated devices that perform tasks such as removal of intra-row weeds, as well as to thin crops to desired stands. However, it is doubtful that private funding alone from small startup companies will be adequate to develop automated robotic weeders custom-designed for U.S. crops. Public funding is needed to help train students in the multidisciplinary fields of science, technology, and engineering needed to advance the development of automated robotic weeders. Research is needed on more challenging precision weed control technologies, such as lasers or sand abrasives to remove weeds. These public investments would be a win-win for everyone as it generates higher paying jobs in the crop protection industry, leads to the use of lower risk weed control tactics, and maintains a safe and affordable supply of U.S. vegetables.*

New National Research Initiative Aims to Improve Cover Crops

The Foundation for Food and Agriculture Research (FFAR) and The Samuel Roberts Noble Foundation launched a collaborative, multi-partner research effort to improve soil health in the U.S. The $6.6 million initiative, made possible by a $2.2 million grant from FFAR, unites the resources of the two foundations with scientific expertise from several universities and the USDA behind a new effort to encourage adoption of existing cover crops and use advanced breeding techniques to develop and deploy new varieties with enhanced soil health-promoting traits.

Field trials will be conducted at five strategic sites to assist with cover crop evaluations: Maryland for the northeast, North Carolina for the southeast, Oklahoma for the Southern Plains, Nebraska for the Northern Plains and Missouri for the Midwest. More details about the initiative are at: http://foundationfar.org/challenge/healthy-soils-thriving-farms/national-cover-crop-initiative/

Pesticide Registration Improvement Bill Passed by House

H.R. 1029, the Pesticide Registration Improvement Act (PRIA), passed the House by a voice vote on March 20 and now awaits action in the Senate. The current version of PRIA, which expires on Sep. 30, 2017, sets fees for pesticide registrants seeking to get products registered in return for regular approval schedules. The law has bipartisan support because a proportion of the

registrant user fees supports farmworker safety and environmental programs. Currently, registrants pay $27 million per year in user fees. H.R. 1029 would increase those fees to $31 million per year and reauthorize PRIA for seven years instead of five.

New CAST Issue Paper- Crop Protection Contributions toward Agricultural Productivity

The Council for Agricultural Science and Technology (CAST) released a new Issue Paper on April 5 that examines the current plant protection revolution that is driven by the biological realities of pesticide resistance, various market forces, and real or perceived side effects of pesticides. The paper has six authors, including weed scientists Dr. Hugh Beckie from Agriculture and Agri-Food Canada and Dr. Jill Schroeder from USDA.

This CAST Issue Paper (IP58) and its companion Ag quickCAST are available online at the CAST website: https://www.cast-science.org/publications/

Weed Science Societies Comment on APHIS Revision of its Biotechnology Regulations

The National and Regional Weed Science Societies submitted comments on APHIS's proposed rule regarding the importation, interstate movement, and environmental release of certain genetically engineered organisms. http://wssa.net/wp-content/uploads/Weed-Science-Societies-Comments-on-APHIS-biotech-proposal_FINAL.pdf

This is APHIS's first comprehensive revision of the regulations since they were established in 1987. The proposed update of the regulations is in response to advances in genetic engineering and APHIS's accumulated experience in implementing the current regulations. While we complimented APHIS on the many positive aspects of the proposal, we encouraged APHIS to re-propose a rule that minimizes regulatory uncertainty related to their weed risk assessment model. For more info about the proposed rule: https://www.regulations.gov/docket?D=APHIS-2015-0057

$75 Million Available from APHIS for Pest Detection, Surveillance, and Identification

In July 2017, APHIS will be issuing a call for "suggestions" (i.e. proposals) for its "Plant Pest and Disease Management and Disaster Prevention" program, also referred to as the Farm Bill Section 10007 program. The program provides funding to strengthen the nation's infrastructure for pest detection and surveillance, identification, and threat mitigation.

In FY 2017 there was $62.5 million available with about $5 million of that going to the National Clean Plant Network. APHIS received 720 proposals and funded 480 of them, a 66% success rate. FY 2017 funded projects are at: https://www.aphis.usda.gov/plant_health/farmbill-section10007/fy17/FY2017-PPDMDPP-Spending-Plan.pdf. There were only a few related to weeds, but only because there were not that many applications (i.e. "suggestions") for weed and weed seed surveillance, identification, and threat mitigation.

For more info about the program, FAQ's, and a powerpoint presentation, visit: https://www.aphis.usda.gov/aphis/ourfocus/planthealth/ppq-farm-bill/farmbill-activities-17

Some ideas for projects to consider:

- Risk assessment and pathways for herbicide-resistant (HR) weeds, risk based models and decision support tools.

- Weed surveillance- If a state is concerned about a particular injurious invasive weed and it impacts their production or exports.
- Targeting domestic weed and weed seed inspection activities at vulnerable points of entry into states and the country.
- Preventing the introduction of HR weeds from foreign countries.
- Creating new identification and testing methods to detect weed seed in various seed or commodities (i.e. pollinator seed mixes).
- Outreach and education for managing invasive and HR weeds.

A call for "suggestions", i.e. applications, for FY 2018 projects will be issued around mid July 2017 and will be open for 6 weeks.

Overwintering Monarchs Cover 2.91 Hectares

The total area occupied by monarch colonies at overwintering sites in Mexico in 2016-17 was estimated to be 2.91 hectares, which is less than the 4.01 hectares in 2015-16, but still greater than the previous four winters before that. By most accounts, the 2016-17 overwintering numbers are still better than anticipated given that the overwintering grounds were hit with a freak snowstorm in March 2016 that killed up to an estimated 50% of the overwintering population.

Large Push of Monarchs Northward, but ahead of Milkweed

Chip Taylor, founder and director of Monarch Watch, provided an update on the status of the monarch migration this spring and a rare "spring roosting" event in Oklahoma. The update is available here.

While it is great to hear that there are large numbers of monarchs moving north from their overwintering grounds this spring, they are apparently outpacing the emergence of milkweed. This could end up badly for the monarchs, as it did in 2000 when there was a somewhat similar earlier push into Kansas and other northern sites. The overwintering population that year was only 2.83 hectares, down considerably from the 9.05 hectares from the previous overwintering population. Monarchs resulting from the premature, ahead of the milkweed push, will in effect, lose a generation.

NRCS Providing Funds to Establish Milkweed in 10 States

The monarch butterfly is now a national priority species of Working Lands for Wildlife (WLFW), a partnership between USDA NRCS and the U.S. Fish and Wildlife Service (FWS) that will focus on the eastern monarch population. Through WLFW, the NRCS will target conservation efforts where the returns are highest by targeting the threat of habitat loss. WLFW will provide technical and financial assistance through the Environmental Quality Incentives Program, Agricultural Conservation Easement Program and Conservation Stewardship Program. The projects initial focus is on two separate regions in the U.S., 7 Midwest states (MO, IA, IL, IN, OH, MN and WI) and 3 South Central states (KS, OK, TX). In these states, NRCS will provide assistance to land owners for establishing certain milkweed species. If land owners are interested in technical and financial assistance from NRCS, they should contact their local USDA service center.

WOTUS Rewrite Ordered by President

On Feb. 28, 2017, President Trump issued an Executive Order that directs the heads of the Army Corps of Engineers and EPA to "review and reconsider" the existing Waters of the United States (WOTUS) rule that took effect Aug. 28, 2015. That rule was an unprecedented expansion of Clean Water Act jurisdiction beyond "navigable waters" and included waters with a "significant nexus" to navigable waters such as intermittent and ephemeral streams that farmers use for drainage and irrigation.

The Executive Order instructs the two agency leaders to review a 2006 opinion written by late Supreme Court Justice Antonin Scalia in *Rapanos v. United States*. In that opinion, Scalia argued that federal jurisdiction extends only to water bodies with a permanent flow or non-navigable waterways that connect via surface water with areas with permanent flow — definitions with a more limited approach than the EPA established in its 2015 WOTUS rule.

The proposed rule, "Definition of the 'Waters of the United States' — Recodification of Preexisting Rules" was sent to the Office of Management and Budget (OMB) for interagency review on May 2. This is the first step in the federal rule making process and will be followed by a public notice and comment period.

"NPDES Fix" Legislation Passes House.

New "NPDES fix" legislation has been re-introduced in both the House and Senate in the 115th Congress. The Reducing Regulatory Burdens Act of 2017 (HR 953) was introduced on Feb. 7, 2017 by Rep. Bob Gibbs (R-OH). The House passed H.R. 953 by a vote of 256 to 165 on May 24.

This is the fourth time this legislation has been up for a vote in the past 7 years, each time passing the House, but ending up stalled in the Senate. The National and Regional Weed Science Societies have supported the NPDES-fix from the start and endorsed a letter to Congress urging passage of H.R. 953, along with more than 100 other organizations on May 23.

The companion bill in the Senate is S. 340 and was introduced on Feb. 7 by Senators Mike Crapo (R-ID) and Claire McCaskill (D-MO). S. 340 is titled the "Sensible Environmental Protection Act of 2017" and has 15 cosponsors.

Senate EPW Passes Invasive Species Legislation.

The Senate Environment & Public Works (EPW) committee passed the Wildlife Innovation and Longevity Driver (WILD) Act by a voice vote on April 5, 2017. The WILD Act was introduced by Senate EPW Chairman John Barrasso (R-WY) and cosponsored by Ranking Member Tom Carper (D-DE), James Inhofe (R-OK), Cory Booker (D-NJ), John Boozman (R-AR), and Sheldon Whitehouse (D-RI). The WILD Act (S. 826) would reauthorize funding for the Partners for Fish and Wildlife Program in which the Interior seeks partnerships with private landowners in fighting invasive species, including conserving habitat for the greater sage grouse. The bill would also offer rewards for innovative technologies to stop invasive species.

National Invasive Species Awareness Week (NISAW).

NISAW was held February 27 to March 3, 2017 in Washington DC. There were different invasive species themed seminars and webinars every day of the week. All of the NISAW webinars were recorded and are available online at: www.nisaw.org.

The Congressional Invasive Species Caucus has a new co-chair: Rep. Elise Stefanik (R-NY) who was first elected to Congress in 2015 and is the youngest member in the House of Representatives at 32. She represents the northern 1/3 of New York. Mike Thompson (D-CA), first elected to Congress in 1998 from California's wine country just north of San Francisco, will remain as the other co-chair of the Congressional Invasive Species Caucus.

2016 Weed Survey Results

The WSSA Public Awareness Committee issued a press release on May 23 with the results from our 2016 member survey of the most common and troublesome weeds in broadleaf crops, fruits and vegetables. The most troublesome weed was Palmer amaranth and the most common weed was common lambsquarters. For more info, please go to: http://wssa.net/2017/05/wssa-survey-ranks-most-common-and-most-troublesome-weeds-in-broadleaf-crops-fruits-and-vegetables/

The 2017 survey of weeds in grass cropping systems is still open, but will close on **June 30, 2017.** If you have not had the chance to list your most common and troublesome weeds, the survey link is: https://www.surveymonkey.com/r/2017weeds

The Rise of Predatory Publishing: How To Avoid Being Scammed!

This last news item is a little bit off the beaten path, but still very relevant to weed scientists. I want to specifically highlight an article in *Weed Science* written by WSSA's Director of Publications, Dr. Sarah Ward. The issue of predatory publishing is a rapidly growing concern among all disciplines of science and many seasoned scientists have already been duped.

Prospective authors must ultimately decide for themselves whether an unfamiliar on-line open access journal is legitimate and of sufficient quality to be trusted with a manuscript submission. A useful first step is to find out whether the publisher belongs to the Open Access Scholarly Publishers Association (http://oaspa.org), and whether the journal is listed in the Directory of Open Access Journals (http://doaj.org), which has taken stronger recent action to filter out predatory publications.

Here is the abstract from Dr. Ward's article (DOI: https://doi.org/10.1614/WS-D-16-00080.1):

The rise of on-line open access (OA) has profound implications for academic publishing, not least the shift from subscribers to authors as the primary transactional partners for peer-reviewed journals. Although OA offers many benefits, it also paves the way for predatory publishers, who exploit the author-as-customer model to obtain revenue from author fees while providing few of the editorial services associated with academic publishing. Predatory journals publish papers with little or no peer review, and often disguise their real geographical location while exaggerating their scope and editorial expertise. ***Such journals also attempt to attract authors by promising unrealistically rapid editorial decisions while falsely claiming peer review, and fabricating impact factors and inclusion in academic indexes.*** *The explosive increase in predatory OA journals is not only a risk to inexperienced authors, but also threatens to undermine the OA model and the legitimate communication of research.*

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Meetings of the National and Regional Weed Science Societies

Jul. 16 - 19, 2017 Aquatic Plant Management Society (APMS), Daytona Beach, FL www.apms.org
Dec. 4 - 7, 2017 North Central Weed Science Society (NCWSS), St. Louis, MO www.ncwss.org
Jan. 9 - 11, 2018 Northeastern Weed Science Society (NEWSS), Philadelphia, PA www.newss.org
Jan. 22 - 24, 2018 Southern Weed Science Society (SWSS), Atlanta, GA www.swss.ws
Jan. 29 - Feb. 1, 2018 Weed Science Society of America (WSSA), Arlington, VA www.wssa.net
Mar. 12-15, 2018 Western Society of Weed Science (WSWS), Garden Grove, CA www.wsweedscience.org